

SCIENTOMETRIC AND INFORMATION PROVISION OF HYDROGEN–METAL PROBLEMS ADEQUATE DEVELOPMENT

L.F. Goltsova, V.A. Goltsov

*Donetsk State Technical University, Physics Department, Scientific Research Laboratory
of Interaction of Hydrogen with Metals and Hydrogen Technologies*

58 Artyom street, Donetsk, 83000, Ukraine

e-mail: goltsova@fem.dgtu.donetsk.ua; goltsov@physics.dgtu.donetsk.ua

In 1977 the Scientific Research Laboratory of Interaction of Hydrogen with Metals and Hydrogen Technologies (the Laboratory) was established by decision of the USSR State Committee on Science and Technology. The Laboratory was set up on the base of the Donetsk Polytechnic Institute (the Donetsk State Technical University at present) for the team–work with I.V. Kurchatov Institute of Atomic Energy (Moscow) and D.V. Efremov Scientific Research Institute of Electrical and Physical Equipment (Leningrad). The main task of the Laboratory was to study interaction of hydrogen with materials as applied to the problems of thermonuclear energy and hydrogen energy [1–4].

During more than two decades the Laboratory in addition to experimental investigations have been systematically carrying out scientometric studies and information provision of the problem.

Data base on the problem numbers now more than 55,000 information units.

A special scientometric investigation of the world documentary flow of publications showed that more than 12% of the world publications on hydrogen–metal subject are connected with the first wall of fusion reactors. Those investigations are have been fulfilled in 34 countries.

Interaction of hydrogen plasma with the first wall of fusion reactors is successfully advancing in the USA (28% of the world publications), former the USSR – now CIS countries (24%), Germany (15%), Japan (11%), France (6%), Great Britain (4%), and other countries give 10% of the information.

The scientific structure of the first wall sub-problem have been elaborated on the basis of the information file in the form of subject classification. The classification is based in the following main subject rubrics: (1) General issues, reviews, conferences, programs, etc.; (2) Methods for investigation, equipment; (3) Interaction of hydrogen isotopes with metal surface (including recycling as the second-level point of this rubric); (4) Diffusion, solubility, penetration of hydrogen isotopes; (5) Influence of hydrogen isotopes on mechanical, electrical, magnetic, etc. properties; (6) Construction, materials and their life-time; (7) Tritium technology; (8) Safety and ecology. The subject classification has 132 rubrics all in all.

The information structure of the problem of hydrogen isotopes interaction with the fusion reactor first wall materials will be presented in the report. The recycling sub-problem will be analyzed.

References

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3. L.F. Goltsova e.a., *Int. J. Hydrogen Energy*, 15 (1990) 655.
4. *Proc. 4 th All-Union Conf. On Engineering Problems of Fusions*, January 19–21, 1988, Leningrad. Book of Abstracts (in Russian).